IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Original): A torque sensor where a first rotary shaft and a second rotary shaft are disposed on a common axial line, with the first rotary shaft and the second rotary shaft being coupled together by a torsion bar, and which detects torsional torque applied between the first rotary shaft and the second rotary shaft, the torque sensor comprising:

magnetic field generating means that generates a magnetic field in the radial direction around the common axial line;

magnetic field varying means that varies, in response to the relative rotation between the first rotary shaft and the second rotary shaft, the direction and magnitude of detected magnetic flux flowing along the common axial line from the magnetic field generating means; and

magnetic sensor means that detects the detected magnetic flux,

wherein the magnetic sensor means generates an output signal whose polarity changes in response to the direction of the detected magnetic flux and whose magnitude changes in response to the magnitude of the detected magnetic flux.

Claim 2 (Original): The torque sensor of claim 1, wherein the magnetic field generating means comprises at least one ring-shaped permanent magnet disposed around the common axial line, and the permanent magnet is magnetized in the radial direction around the common axial line.

Claim 3 (Original): The torque sensor of claim 1, wherein the magnetic field generating means comprises plural permanent magnet plates disposed around the common axial line, and the magnetic field is generated by these permanent magnet plates.

Claim 4 (Original): The torque sensor of claim 1, further comprising an outer peripheral cylinder that rotates together with the second rotary shaft, wherein the magnetic field varying means includes plural magnetic field varying means, and these plural magnetic field varying means are disposed along the common axial line on an inner periphery of the outer peripheral cylinder.

Claim 5 (Original): The torque sensor of claim 4, wherein the outer peripheral cylinder includes a first outer peripheral cylinder and a second outer peripheral cylinder disposed along the common axial line, the first outer peripheral cylinder and the second outer peripheral cylinder are constructed such that the detected magnetic flux flows between them, and the magnetic sensor means is disposed such that the detected magnetic flux passes through.

Claim 6 (Original): The torque sensor of claim 5, wherein a first magnetic field varying means and a third magnetic field varying means are disposed on an inner periphery of the first outer peripheral cylinder, and a second magnetic field varying means and a fourth magnetic field varying means are disposed on an inner periphery of the second outer peripheral cylinder.

Claim 7 (Original): The torque sensor of claim 6, wherein

each of the first, second, third and fourth magnetic field varying means includes inner peripheral magnetic poles that rotate together with the first rotary shaft and outer peripheral magnetic poles that oppose the inner peripheral magnetic poles,

the outer peripheral magnetic poles of the first and third magnetic field varying means are disposed on an inner peripheral surface of the first outer peripheral cylinder, and

the outer peripheral magnetic poles of the second and fourth magnetic field varying means are disposed on an inner peripheral surface of the second outer peripheral cylinder.

Claim 8 (Original): The torque sensor of claim 6, wherein

first beveled magnetic pole plates and second beveled magnetic pole plates that extend in a direction beveled a predetermined angle with respect to the common axial line are disposed on the inner peripheries of the first outer peripheral cylinder and the second outer peripheral cylinder,

the first magnetic field varying means and the third magnetic field varying means are constructed using the first beveled magnetic pole plates, and

the second magnetic field varying means and the fourth magnetic field varying means are constructed using the second beveled magnetic pole plates.

Claim 9 (Original): The torque sensor of claim 5, wherein the magnetic sensor means is fixed such that it does not move even if the first outer peripheral cylinder and the second outer peripheral cylinder rotate.

Claim 10 (Original): The torque sensor of claim 1, wherein the magnetic sensor means includes first and second magnetic sensors, each of these magnetic sensors detects detected magnetic flux flowing along the common axial line from the magnetic field generating means and generates an output signal whose polarity changes in response to the direction of the detected magnetic flux and whose magnitude changes in response to the magnitude of the detected magnetic flux.

Claim 11 (Original): The torque sensor of claim 1, wherein the torque sensor also detects, in addition to the torsional torque, the rotation angle of the second rotary shaft on the basis of the output signal of the magnetic sensor means.

Claim 12 (Currently Amended): The torque sensor of claim 1, wherein the magnetic sensor means includes first and second magnetic sensors, wherein when each of these magnetic sensors detects the detected magnetic flux flowing along the common axial line from the magnetic field generating means, the output of the first magnetic sensor includes a first signal component that periodically changes in accompaniment with the rotation of the second rotary shaft, and the output of the second magnetic sensor includes a second signal component of the opposite phase of the first signal component in accompaniment with the rotation of the second rotary shaft.

Claim 13 (Original): The torque sensor of claim 1, further comprising rotation angle detecting means that detects the rotation angle of the second rotary shaft.